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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,549	11/27/2000	Brian Doege	23969-P001US	7916

14

7590 06/02/2003

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EXAMINER
BARRY, CHESTER T

ART UNIT	PAPER NUMBER
1724	

DATE MAILED: 06/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/723,549	DOEGE ET AL.	
	Examiner	Art Unit	
	Chester T. Barry	1724	

9-14

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-5,8-20,27,28,39 and 42-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *27 and 28* is/are allowed.

6)☒ Claim(s) *3 – 5, 8 – 10, 14, 17, 18, 39, 42 – 43, 44-48* is/are rejected.

7)☒ Claim(s) *11-13,15,16,19 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Prosecution is re-opened in order to make the following rejections.

It is regretted that the Green patent was not cited earlier during prosecution.

Claims 42 – 43, 44, 46, 3 – 5, 8 – 10, 14, 17, 18, 39 are rejected under 35 U.S.C. 103(a)[1] as being unpatentable over Green, Tracy, Lin, and Coviello.

USP 3,666,106 to Green describes a method for treating an airplane, bus, or train (col 1line 28 – 30) toilet (E) system. The method includes the step of selecting a bacteria (e.g., "anaerobic bacterial action " in tank B, col 3 line 10, and/or the "aerobic bacteria"). Green does not expressly describe a "tank" type toilet or charging the toilet system with a flushing fluid, but does describe the toilet E having a "trap" (col 3 line 4). The skilled artisan would have understood from this disclosure of a trap that the toilet that Green contemplated was a conventional flushing-fluid, tank-type toilet[2] rather than the less conventional -albeit known – fluid-less, tank-less type toilet. The former are characterized by "traps" whereas the latter are not.[3] Per claim 43, Green's tank system can be a single tank divided into three separate sections or zones (col 2 lines 25 – 35).

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[1] 35 U.S.C. §103(a) states:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

[2] Webster's Collegiate Dictionary (10th edition) defines "toilet" as "a fixture that ***usu[ally]*** consists of a water-flushed bowl and seat and is used for defecation and urination" (page 1240) (emphasis added).

[3] See, for example, USP 5450634 to Mohrman describing "the water flush-type standard toilet" (col 1 line 34). See also, USP 4346002 to Petzinger, describing three different ways of transporting waste from a toilet to the compartment where it is aerobically transformed: water as the transporter with vacuum, water as the transporter with gravity, and water-less gravity free fall of waste. See col 1 lines 25-35.

The total capacity of the tank is about 60 gallons (col 4 lines 23-30). Insofar as 60 gallons is less than 120 gallons, Green's tank system meets the tank volume limitation of claim 43. Per claim 44 and 46, Green suggests removing the contents of the tank system based on time intervals (col 1 lines 68-75).

Green does not anticipate claim 42 because Green's toilet system is not a recirculation toilet system. Nor does Green describe combining a surfactant with bacteria and flushing liquid.

USP 6143185 to Tracy describes reuse of flushing water in an aircraft-borne tank toilet system. Recirculation and reuse of flushing water (col 1 line 50) reduces the amount of water that must be stored on the aircraft (col 1 line 49), reduces fuel consumption (col 1 line 47) and overall cost (col 1 line 48), improves airline competitiveness (col 1line 42), and reduces the risk of objectionable odors entering the passenger cabin's ventilation system (col 1 line 38). It would have been obvious to have recirculated at least a portion of the treated water from Green's holding tank D to the toilets in order to reduce the amount of water that must be stored on the aircraft, reduce fuel consumption, reduce overall aircraft operating cost, improve airline competitiveness, and reduce the risk of objectionable odors entering the passenger cabin's ventilation system, as suggested by Tracy. The person of ordinary skill in this art would have known how to effect recirculation of the water from tank D to the toilets without undue experimentation because closed loop recirculation tank toilet systems were known, as shown, for example, by USP 4210528 to Coviello.

Like Green, USP 5863882 to Lin is directed to septic systems. Lin describes a cleaner and sanitizer formulation for cleaning toilets. After application to the toilet surface, the formulation is discharged into the sewage collection system, holding tanks, or septic system. The formulation includes bacterial spores and a surfactant. The formulation is effective in seeding the connecting drain lines and waste collection systems with beneficial microbes, i.e., bacteria, and enhance the degradation of organic wastes. It would have been obvious to have added Lin's bacterial / surfactant formulation to Green's septic system, as modified by Tracy, for the purpose of enhancing degradation of organic wastes from Green's toilet, as suggested by Lin. Per at least claim 3, Lin describes *B. licheniformis*.(col 4 line 60 and elsewhere). Further, insofar as Lin reports formulating the composition with specified amounts of bacteria (albeit expressed in terms of colony forming units rather than as dry cell mass) and mass of surfactant, the skilled artisan would have appreciated that bacteria:surfactant weight ratio is a known result-effective parameter, the optimization of which would have been obvious.

Claim 43 is rejected under 35 USC §112(2nd paragraph) for failing to particularly point out and distinctly claim the subject matter for which patent protection is sought. The ambiguity arises in simultaneous use of the modifiers "at most" and "about" in connection with the volume of the tank. It is unreasonably unclear how large a tank may be and still meet the "at most about 120 gallons" size limitation. For example, assuming an accused method meets the limitations of claim 42, it is unreasonably

unclear whether the accused method would also literally infringe claim 43 if the tank used were a 455 liter tank, i.e., one having a volume of about 120.2 gal. This basis for rejection under this section can be overcome by deleting "at most" from the claims in which "at most about" is recited.

Claims 44 – 48 are rejected under 35 USC §112(2nd paragraph) for failing to particularly point out and distinctly claim the subject matter for which patent protection is sought. The ambiguity arises in step (d) which reads, "monitoring the tank system to determine the flushing liquid should be removed." It is unclear whether the step requires monitoring the tank system to determine:

D1) ***by whom*** the flushing liquid should be removed;
D2) ***to whom*** the flushing liquid should be removed;
D3) ***with what*** the flushing liquid should be removed;
D4) ***where*** the flushing liquid should be removed;
D5) ***to where*** the flushing liquid should be removed;
D6) ***whether*** the flushing liquid should be removed;
D7) ***when*** the flushing liquid should be removed;
D8) ***for how long*** the flushing liquid should be removed; or
D9) ***how*** the flushing liquid should be removed.

Claims 45 – 48 are rejected for the same reasons applied to claim 44.

Claims 46 and 48 are rejected also on the following independent basis: It is unclear what the phrase "monitoring step is a time basis" means. It is unclear how or in what respect a "monitoring step" can be a "time basis." While it can be imagined that one might monitor the passage of time before, say determining when to remove flushing fluid from the tank system, or alternatively, monitor the passage of time during which the flushing fluid is removed, it is unclear which of these two – or another – interpretation is

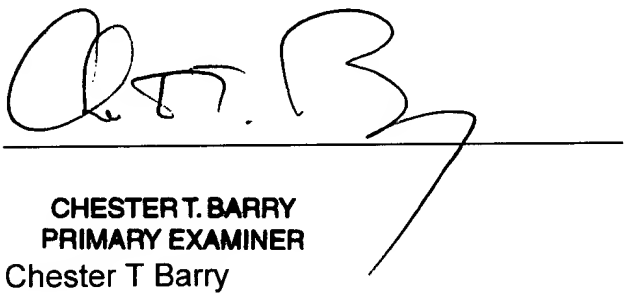
desired by applicant's recital of "monitoring step is a time basis." A time basis for what? For example, per claim 47, it is unclear what it means to say that the monitoring step "is" at most three days. Did applicant mean to say, "wherein the monitoring step lasts for at most three days before it is determined when the flushing fluid should be removed"? Or did applicant mean to say, "wherein the monitoring step lasts for at most three days before the flushing fluid is removed"? Similarly, per claim 48, it is unclear what it means to say that the monitoring step "is" a trip basis. What trip? Airplane, bus, or train trips on the one hand, or passenger trips (visits) to the toilet? Further, if airplane, bus, or train trips, then it is not reasonably clear how one defines what an airplane "trip" is. Is it a single airborne leg beginning with one take-off and one landing? Or is it defined differently, such as from one refueling to the next? Similarly, it is unclear whether the number of a bus trips is defined by the number of scheduled stops or depot visitations, or by refuelings, or by some other measure. Similarly, it is unclear whether a train trip is defined by the connection and disconnection of a locomotive from a tank system-bearing railroad car, or by scheduled station stops, or other characteristic.

While no objection or rejection substantially related to patentability is made on the following point, the examiner suggests that applicant insert "the" before "level" in claim 45 to improve readability thereof.

Claims 47, 11, 12, 13, 15, 16, 19, 20, 27, 28 are allowable over prior art. Any of these claims which are independent claims and not rejected for non-art reasons are

allowable. If dependent or rejected for non-art reasons, they would be allowed if re-written in independent form and amended to overcome any outstanding rejections that are not based on prior art. The prior art suggests monitoring the passage of time before removing the tank system contents, but does not suggest the specific "monitoring step" time period of at most three days, i.e., at most 72 hours, preceding the determination step followed by the flushing fluid removal step. The prior art also does not suggest use of certain particularly claimed formulations with recited weight or ratio ranges.

Respectfully,



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